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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/732,992	12/11/2003	Shyam Kumar Verma	208-6139CT	8307

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KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
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KHAN, AMINA S

ART UNIT	PAPER NUMBER
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1751

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/732,992

Applicant(s)

VERMA ET AL.

Examiner

Amina Khan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 43-63,73,74,76 and 77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-63,73,74,76 and 77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Claims 43-63, 73, 74, 76 and 77 are pending. Claims 1-42, 64-72, 75 and 78-92 have been cancelled.
3. In view of applicant's arguments, all previous rejections are withdrawn.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 43-56 and 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. (WO 97/49842) in view of Chandler et al. (US 5,577,388).

Verma et al. teaches absorption solutions for use in refrigeration systems with corrosion inhibiting effects (abstract) comprising at least one heteropoly complex ion of transition metal element (page 4, lines 1-35). Verma further teaches the claimed heteropoly complex ions (column 3, lines 15-48) of the formulas claimed in claim 46, where X is phosphorous, manganese, tellurium or arsenic (page 8, lines 10-15) and M

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is molybdenum or tungsten (page 8, lines 18-29). Verma further teaches heteropoly complex anion selected from phosphomolybdates of the formula  $[\text{PMo}_{12}\text{O}_{40}]^{-3}$ , silicon molybdates, silicon tungstates, tellurium molybdates, arsenic molybdates, and mixtures thereof (page 8, lines 30-37; page 9, lines 1-10).

Verma does not teach absorption compositions comprising 20-80 weight percent alkali metal hydroxides, alkaline metal earth hydroxides, or mixtures thereof and additional anticorrosive transition metal compounds.

Chandler et al., in the analogous art of absorption fluids for use in refrigeration systems (column 4, lines 15-20), teaches absorption working fluids comprising between 30-80% alkali metal hydroxides (column 1, line 65 to column 2, line 20), manganese, zinc, and iron chlorides and bromides (column 1, lines 40-60) and corrosion inhibitors such as chromates, tungstates or molybdates (column 4, lines 10-35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorption fluids taught by Verma et al. by incorporating the hydroxides at the claimed percentages, transitional metal halides and other transitional metal corrosion inhibitors as taught by Chandler et al. because Chandler et al. teaches that optimum energy storage potentials of absorption fluids in refrigeration systems are realized when sodium hydroxide and potassium hydroxide are present at these percentages (column 2, lines 1-10). It is prima facie obvious to combine the two compounds, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their

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known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the absorption refrigeration solution art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

6. Claims 57-63 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. (WO 97/49842) in view of Chandler et al. (US 5,577,388) as applied to the claims above, and further in view of Kujak et al. (US 5,783,104).

Verma et al. and Chandler et al. are relied upon as set forth above.

Verma et al. and Chandler et al. do not teach compositions comprising germanium bromides or cobalt chloride.

Kujak et al., in the analogous art of refrigeration absorption solutions, teaches absorption solutions comprising transition metal halides such as cobalt chloride (column 3, lines 14-30) and corrosion inhibitors such as germanium bromide in an amount sufficient to inhibit corrosion (column 3, lines 55-67; column 4, lines 1-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorption fluids taught by Verma et al. and Chandler et al. by incorporating transition metal halides such as cobalt chloride as well as germanium bromide as taught by Kujak et al. because Kujak et al. teaches that these compounds inhibit corrosion even when present in low concentrations on the refrigerant solutions (column 3, lines 64-68). It is prima facie obvious to combine the two compounds, each taught for the same purpose, to yield a third composition for that very

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purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the absorption refrigeration solution art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

All disclosures of the prior art, including non-preferred embodiment, must be considered. See *In re Lamberti and Konort*, 192 USPQ 278 (CCPA 1967); *In re Snow* 176 USPQ 328 (CCPA 9173). Nonpreferred embodiments can be indicative of obviousness, see *Merck & Co. v. Biocraft Laboratories Inc.* 10 USPQ 2d 1843 (Fed. Cir. 1989); *In re Lamberti*, 192 USPQ 278 (CCPA 1976); *In re Kohler*, 177 USPQ 399. A reference is not limited to the working examples, see *In re Fracalossi*, 215 USPQ 569 (CCPA 1982).

7. Claims 57-60,62 and 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. (WO 97/49842) in view of Chandler et al. (US 5,577,388) as applied to the claims above, and further in view of Takahashi (JP402296888).

Verma et al. and Chandler et al. are relied upon as set forth above.

Verma et al. and Chandler et al. do not teach compositions comprising antimony oxides or cobalt chloride.

Takahashi, in the analogous art of refrigeration absorption solutions, teaches absorption solutions comprising the corrosion inhibitors cobalt chloride and antimony trioxide (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorption fluids taught by Verma et al. and Chandler et al. by incorporating transition metal halides such as cobalt chloride as well as antimony trioxide as taught by Takahashi because Takahashi teaches that these compounds have high corrosion inhibiting capabilities when included in absorbent liquids for refrigerating machines (abstract). It is prima facie obvious to combine the compounds, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the absorption refrigeration solution art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

8. Claims 57-60 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. (WO 97/49842) in view of Chandler et al. (US 5,577,388) as applied to the claims above, and further in view of Yazaki Corp (JP01174588).

Verma et al. and Chandler et al. are relied upon as set forth above.

Verma et al. and Chandler et al. do not teach compositions comprising antimony oxides.

Yazaki Corp, in the analogous art of refrigeration absorption solutions, teaches absorption solutions comprising diantimony trioxide (abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorption fluids taught by Verma et al. and Chandler et al. by diantimony trioxide as taught by Yazaki Corp because Yazaki Corp teaches that these compounds form dense protective films on the surface of steel and copper and provide improved corrosion controlling effects in refrigeration machines (abstract). It is prima facie obvious to combine the compounds, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the absorption refrigeration solution art would expect combinations of these materials to behave in the same fashion as the individual materials, absent unexpected results.

9. Claims 57-60 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. (WO 97/49842) in view of Chandler et al. (US 5,577,388) as applied to the claims above, and further in view of Greenley et al. (US 3,200,604).

Verma et al. and Chandler et al. are relied upon as set forth above.



Verma et al. and Chandler et al. do not teach compositions comprising antimony oxides.

Greenley et al., in the analogous art of refrigeration absorption solutions, teaches absorption solutions comprising corrosion inhibitors such as oxides of antimony (page 5, lines 60-75; column 6, Tables I and III; column 8, lines 60-70). Greenley et al. further teaches that the antimonial coatings are corrosion resistant while at the same time have the property of tending to inhibit those metal portions of absorption refrigeration machines which are subject to corrosion by being in contact with absorbent solution. Greenley et al. further teaches these compositions provide superior corrosion resistant properties at relatively high temperatures even when substantial oxygen is present in the system to cause oxidation to the metal surfaces (column 9, lines 15-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorption fluids taught by Verma et al. and Chandler et al. by incorporating antimony oxides as taught by Greenley et al. because Greenley et al. teaches that these compounds form dense protective films on the surface of steel and copper and provide a marked decrease in corrosion rates in refrigeration machines (column 5, lines 65-76; column 7, lines 60-75). It is prima facie obvious to combine the compounds, each taught for the same purpose, to yield a third composition for that very purpose. *In re Kerkhoven*, 205 USPQ 1069, *In re Pinten*, 173 USPQ 801, and *In re Susi*, 169 USPQ 423 when ingredients are well known and combined for their known properties, the combination is obvious absent unexpected results. A person of ordinary skill in the absorption refrigeration solution art would expect combinations of these

materials to behave in the same fashion as the individual materials, absent unexpected results.

10. Claims 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Verma et al. (WO 97/49842) in view of Greenley et al. (US 3,200,604) as applied to the claims above, and further in view of Cheng et al. (US 5,871,667).

Verma et al. and Greenley et al. are relied upon as set forth above.

Verma further teaches absorption solutions comprising lithium hydroxide (page 10, lines 30-35).

Verma et al. and Greenley et al. do not teach compositions comprising antimony tribromide. However, Greenley et al. clearly teaches  $\text{Sb}_2\text{O}_4$  and  $\text{Sb}_2\text{O}_3$ .

Cheng et al. teaches the equivalent anticorrosive properties antimony tribromides and various antimony oxides such as  $\text{Sb}_2\text{O}_4$  and  $\text{Sb}_2\text{O}_3$  (page 5, 1-30). Cheng et al. further teaches that these compositions are highly effective in inhibiting corrosion of ferrous metals such as steel (column 1, lines 50-55).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the absorption fluids taught by Verma et al. and Greenley et al. by substituting antimony tribromides for antimony oxides as taught by Cheng et al. because Cheng et al. teaches the equivalence of antimony tribromides and antimony oxides in effectively inhibiting corrosion of metals such as steel a common component of refrigeration systems. The substitution of art recognized equivalents only involves

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routine skill in the art. A person of ordinary skill in the absorption refrigeration solution art would have been motivated to combine the references absent unexpected results.

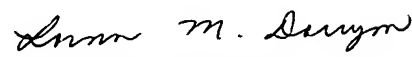
### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amina Khan whose telephone number is (571) 272-5573. The examiner can normally be reached on Monday through Friday, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Amina Khan  
September 28, 2006

  
LORNA M. DOUYON  
PRIMARY EXAMINER